

CLAIMS:

1. An optical recording medium comprising a substrate, a first recording layer formed on the substrate and containing an element selected from a group consisting of C, Si, Ge and Sn as a primary component, and a second recording layer located in the vicinity of the first recording layer and containing an element selected from the group consisting of C, Si, Ge and Sn and different from the element contained as a primary component in the first recording layer as a primary component.
- 10 2. An optical recording medium in accordance with Claim 1, wherein the second recording layer is formed so as to be in contact with the first recording layer.
- 15 3. An optical recording medium in accordance with Claim 1 which further comprises a light transmission layer provided on a side opposite to the substrate with respect to the first recording layer and the second recording layer.
- 20 4. An optical recording medium in accordance with Claim which further comprises a light transmission layer provided on a side opposite to the substrate with respect to the first recording layer and the second recording layer.
- 25 5. An optical recording medium in accordance with Claim 3 which further comprises a first dielectric layer provided between the light transmission layer, and the first recording layer and the second recording layer, and a second dielectric layer provided between the first recording layer and the second recording layer, and the substrate.

6. An optical recording medium in accordance with Claim 4 which further comprises a first dielectric layer provided between the light transmission layer, and the first recording layer and the second recording layer, and a second dielectric layer provided between the first recording layer and the second recording layer, and the substrate.

5

7. An optical recording medium in accordance with Claim 5 which further comprises a reflective layer provided between the substrate and the second dielectric layer.

10

8. An optical recording medium in accordance with Claim 6 which further comprises a reflective layer provided between the substrate and the second dielectric layer.

15

9. An optical recording medium in accordance with Claim 1 wherein which is constituted as a write-once type optical recording medium.

10. An optical recording medium in accordance with Claim 2 wherein

20

which is constituted as a write-once type optical recording medium.

11. An optical recording medium in accordance with Claim 3 wherein which is constituted as a write-once type optical recording medium.

25

12. An optical recording medium in accordance with Claim 4 wherein which is constituted as a write-once type optical recording medium.

13. An optical recording medium in accordance with Claim 5 wherein

which is constituted as a write-once type optical recording medium.

14. An optical recording medium in accordance with Claim 6 wherein
which is constituted as a write-once type optical recording medium.

5

15. An optical recording medium in accordance with Claim 7 wherein
which is constituted as a write-once type optical recording medium.

16. An optical recording medium in accordance with Claim 8 wherein
10 which is constituted as a write-once type optical recording medium.

17. A method for optically recording data in an optical recording
medium comprising a step of projecting a laser beam having a wavelength
of 350 nm to 450 nm onto an optical recording medium comprising a
15 substrate, a first recording layer formed on the substrate and containing
an element selected from the group consisting of C, Si, Ge and Sn as a
primary component, and a second recording layer located in the vicinity of
the first recording layer and containing an element selected from the
group consisting of C, Si, Ge and Sn and different from the element
20 contained as a primary component in the first recording layer as a
primary component, thereby mixing the element contained in the first
recording layer as a primary component and the element contained in the
second recording layer as a primary component to form a record mark.

25 18. A method for optically recording data in an optical recording
medium in accordance with Claim 17 which comprises steps of employing
an objective lens and a laser beam whose numerical aperture NA and
wavelength λ satisfy $\lambda/NA \leq 640$ nm, and projecting the laser beam onto

the optical recording medium via the objective lens, thereby recording data in the first recording layer and the second recording layer.

19. A method for optically recording data in an optical recording medium in accordance with Claim 17, wherein the optical recording medium further comprises a light transmission layer provided on a side opposite to the substrate with respect to the first recording layer and the second recording layer and the laser beam is projected onto the light transmission layer.

10

20. A method for optically recording data in an optical recording medium in accordance with Claim 18, wherein the optical recording medium further comprises a light transmission layer provided on a side opposite to the substrate with respect to the first recording layer and the second recording layer and the laser beam is projected onto the light transmission layer.